

Remarks

Applicant has reviewed the Office Action dated as mailed August 22, 2006, and the documents cited therewith. After the above amendments, the present application contains claims 1-22, 24-52, 54-64, and 66-70. Claims 1, 30, 52, and 61 have been amended. Claims 23, 53, and 65 have been canceled.

Claim Rejections under 35 U.S.C. §103

Claims 1-6 were rejected under 35 U.S.C. §103(a) as being obvious in view of Kirihata et al. (U.S. Patent 5,764,655; hereinafter Kirihata). This rejection is respectfully traversed. Claim 1 has been amended to recite:

“a transceiver formed on the wafer, wherein the transceiver is formed in one of a scribe line formed in the wafer or on an unusable portion of the wafer to permit testing of the integrated circuits during various stages of a manufacturing process and before separation of the individual integrated circuits and to avoid using any area of the wafer useable to form an integrated circuit;”

In contrast, Kirihata recites in column 3 beginning at line 20:

“It is therefore an object of the present invention to eliminate the need for testers in the manufacturing environment.”

And in column 3 lines 41-51 Kirihata recites:

“Another object of the present invention is to provide in the field access of chip self test results.

Yet another object of the present invention is to provide in the field access of chip self test results via an on chip RF transmitter.

Still yet another object of the present invention is to furnish in the field retesting of an integrated circuit chip by providing both an on chip RF receiver for communicating a retest command and an on chip RF transmitter to communicate the test results.”
(Emphasis added)

Accordingly, Kirihata teaches away from testing in the manufacturing environment and therefore teaches away from the present invention as recited in amended Claim 1. Additionally, as clearly shown in Figures 3 and 4 of Kirihata, Kirihata teaches that the means for communicating 5 in Figure 3 and the RF transceiver 26 in Figure 4 are each formed on the chip (reference numeral 1 in Figure 3 and reference numeral 21 in Figure 4) and that the chip is

separated and is no longer part of the wafer during testing. Thus, Kiriata does not teach or suggest forming the transceiver in a scribe line of a wafer or other unusable portion of the wafer to avoid using any area of the wafer useable to form an integrated circuit as provided by the present invention as recited in amended Claim 1.

Claim 1, as recited above, has been amended to recite the features of Claim 23, namely, wherein the transceiver is formed in one of a scribe line formed in the wafer or on an unusable portion of the wafer to form integrated circuits or chips, and Claim 23 has been canceled. In rejecting Claim 23, the Office Action contends that Tuttle teaches a system wherein the transceiver and antenna are formed in a cavity isolated from the rest of the circuit in that it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the transceiver and antenna on the scribe line instead of the cavity of Tuttle. The examiner has taken Official Notice of the equivalence of a scribe line and cavity for their use in the art. Applicant respectfully submits that the cavity of Tuttle is not the same as the scribe line of a wafer used to separate the chips after manufacturing or fabrication. Referring to Figure 4 and column 5, lines 55-67, Tuttle states beginning at line 55 that Figure 4 is a cross sectional view of the fixture 15 through which the sheet containing the transponders 12 are passed for testing. The cavities 71 and 72 are formed in the fixture 15 and not in the sheet containing the chips or transponders 12 which are being tested. Accordingly, the cavities 71 and 72 discussed in Tuttle are not analogous to scribe lines in a wafer as provided by the present invention as recited in the claims. Furthermore, Tuttle does not teach or suggest that the transceivers are formed in the scribe lines of the wafer or unusable locations on the wafer to permit testing of the integrated circuits are various stages of a manufacturing process as provided by the present invention as recited in Claim 1.

For all of these reasons, Applicant respectfully submits that claim 1 is patentably distinguishable over Kiriata and Tuttle, and reconsideration and withdrawal of the 35 U.S.C. §103 rejection of Claim 1 is respectfully requested.

With respect to the rejection of Claims 2-6 under 35 U.S.C. §102(b) as being obvious in view of Kiriata, these claims contain additional features which further patentably distinguish over Kiriata. For example, Claim 2 recites “wherein the transceiver is coupleable to a plurality of integrated circuits formed on the wafer to test selected ones of the plurality of integrated circuits.” In contrast, Figures 3 and 4 of Kiriata clearly show that each chip has its own means of communicating (means for communicating 5 in Figure 3 or RF transceiver 26 in Figure 4 of Kiriata), and Kiriata does not teach or suggest that the transceiver is coupleable to a plurality of integrated circuits formed on the wafer to test selected ones of the plurality of integrated circuits as provided by the present invention as recited in Claim 2.

Additionally, Claim 5 recites “a multiplexing circuit to couple the transceiver to each of the plurality of integrated circuits.” In contradistinction, Figure 2 of Kiriata, which was cited in the Office Action for rejecting Claim 5, clearly shows that each chip is connected to the tester via the MUX, and there is no teaching or suggestion in Kiriata of a multiplexing circuit to couple the transceiver to each of the plurality of integrated circuits as provided by the present invention as recited in Claim 5.

Furthermore, Claims 2-6 depend either directly or indirectly from independent Claim 1, and by virtue of this dependency, contain all of the features of independent Claim 1. Therefore, for all of the reasons discussed above, Claims 2-6 are also submitted to be patentably distinguishable over Kiriata, and reconsideration and withdrawal of the 35 U.S.C. §103 rejection of Claims 2-6 is respectfully solicited.

Claims 1, 7-19 and 30-34 were rejected under 35 U.S.C. §103(a) as being obvious over Tuttle et al. (U.S. Patent 5,983,363; hereinafter Tuttle). This rejection is respectfully traversed. With respect to Claim 1, as previously discussed, Claim 1 has been amended to recite that the transceiver is formed in one of a scribe line formed in the wafer or on an unusable portion of the wafer to permit testing of the integrated circuit during various stages of a manufacturing process and before separation of the individual integrated circuits and to avoid using any area of the wafer useable to form an integrated circuit. In contrast, Figure 3 of Tuttle clearly shows that the receiver (RCVR) 114 and transmitter (XMTR) 128 are formed on the transponder 12 or integrated circuit.

Additionally, as described above, Claim 1 has been amended to include the features of claim 23. Also, as discussed above, the scribe lines of a wafer are distinguishable from the cavities of the fixture in Tuttle. For all of the reasons discussed above, Applicant respectfully submits that Claim 1 is patentably distinct over Tuttle, and reconsideration and withdrawal of the 35 U.S.C. §103 rejection of Claim 1 is respectfully requested.

Turning now to the rejection of Claims 7-19 under 35 U.S.C. §103(a) as being anticipated by Tuttle, these Claims contain additional features which further patentably distinguish over Tuttle. For example, Claim 8 recites:

“wherein each transceiver of the plurality of transceivers or each transceiver in a subset of transceivers of the plurality of transceivers are each adapted to transmit test result signals simultaneously on different radio frequencies.”

In contrast, Tuttle in column 2, lines 36-39 (cited in the Office Action to reject Claim 8), teaches that the in-sheet transceivers or multiple transceivers may be tested simultaneously but Tuttle does not teach or suggest that the transceivers are each adapted to transmit test signals

simultaneously on different radio frequencies as provided by the present invention as recited in Claim 8.

Claim 12 recites:

“a multiplexing circuit, wherein an integrated circuit to be tested and an associated transceiver are selectable by at least one of a word-line or a bit-line and wherein the transceiver is adapted to select a proper stream of test data of the integrated circuit under test from the multiplexing circuit.”

In contrast, Tuttle in column 3 lines 13-18 recites:

“FIG. 1 is a plan view of a test system of the present invention. Test system 10 provides manufacturing acceptance tests on an in-sheet transponder 12 provided on continuous roll 20 of laminated films. Transponders under test are located in fixture 15. Tested transponders are received on roll 22. Fixture 15 is connected by cable 18 to subsystem 24 so that signals generated by instrumentation and subsystem 24 are coupled to fixture 15 and so that signals received in fixture 15 are coupled to instruments in subsystem 24 for analysis.”

And Tuttle referring to Figure 2 in column 4 lines 5-8 recites:

“When a sheet of transponders is aligned, computer 86 directs RF switch 92 to independently test individual transponders.”

Accordingly, Tuttle teaches that chips or transponders 12 on a continuous roll of laminated film are rolled through the fixture 15 and when aligned in the fixture computer 86 directs RF switch 92 to independently test individual transponders. There is no teaching or suggestion in Tuttle that the MUX 122 in Figure 3 of Tuttle may be used to select a proper stream of test data of the integrated circuit under test as provided by the present invention as recited in Claim 12.

Claim 13 recites:

“a word-line/bit-line power distribution scheme adapted to select an integrated circuit to be tested and an associated transceiver and to distribute test mode power to the selected integrated circuit to be tested and the associated transceiver.”

In contrast, Figure 3 of Tuttle merely shows interconnecting wiring between the different components on the chip or transponder 12 and Tuttle does not teach or suggest a word-line/bit-line power distribution scheme on a wafer as provided by the present invention as recited in Claim 13.

Additionally, Tuttle in column 5 lines 26-30 recites:

“Prior to forming dice from the wafer, all or a representative sample of A/D converters, are tested by introducing stimulus signals and obtaining response signals via wafer probes, as is well known in the art.”

Accordingly, Tuttle teaches the use of wafer probes and does not teach or suggest a word-line or a bit-line power distribution scheme as provided by the present invention as recited in the claims.

Claim 18 recites “wherein the transceiver is adapted to provide one of an amplitude shift keying (ASK) or an on-off keying (OOK) modulation scheme.” Applicant respectfully submits that there is no teaching or suggestion in Tuttle of such features.

Finally, Claims 7-19 depend either directly or indirectly from independent to Claim 1. Because of this dependency, these claims contain all of the features of independent Claim 1. As previously discussed, Claim 1 as amended is patentably distinguishable over Tuttle. Therefore, for all of these reasons, Claims 7-19 are submitted to be patentably distinguishable over Tuttle, and reconsideration and withdrawal of the Section 102 rejection of Claims 7-19 is respectfully requested.

Turning now to the rejection of independent Claim 30 under 35 U.S.C. §103(a) as being obvious over Tuttle, Claim 30 has been amended to recite:

“a plurality of transceivers each adapted to receive and transmit signals to test selected ones of a multiplicity of integrated circuits formed on the wafer and each of the transceivers being formed at a different location on the wafer in one of a

plurality of scribe lines formed in the wafer or at other unusable locations on the wafer to permit testing of the integrated circuits during various stages of a manufacturing process and before separation of the individual integrated circuits and to avoid using any area of the wafer useable to form integrated circuits;"

As previously discussed, Tuttle teaches that the transceivers are formed on the chip or transponder 12 and there is no teaching or suggestion in Tuttle that the transceivers are formed in one of a plurality of scribe lines formed in the wafer or at other unusable locations on the wafer to permit testing of the integrated circuits during various stages of a manufacturing process and before separation of the individual integrated circuits and to avoid using any area of the wafer useable to form integrated circuits. Accordingly, Claim 30 is submitted to be patentably distinguishable over Tuttle, and reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of independent Claim 30 is respectfully solicited.

With respect to the rejection of Claims 31-34 under 35 U.S.C. §103(a) as being obvious over Tuttle, these claims recite additional features which further patentably distinguish over Tuttle. For example, Claim 31 recites a multiplexing circuit to couple each transceiver selectively to one of a predetermined number of the multiplicity of integrated circuits. Claim 32 recites that the transceivers are each adapted to transmit signals corresponding to test results simultaneously on different radio frequencies. Claim 34 recites a word-line/bit-line distribution scheme adapted to select each integrated circuit to be tested and an associated transceiver. As previously discussed, Tuttle does not teach or suggest any of these features.

Furthermore Claims 31-34 depend directly from independent Claim 30, and by virtue of that dependency, contain all of the features of Claim 30. Therefore, Applicant respectfully submits that Claims 31-34 are also patentably distinguishable over Tuttle, and reconsideration and withdrawal of the section 103 rejection of Claims 31-34 is respectfully solicited.

Claims 1, 14-20, 31, 35, and 42 were rejected under 35 U.S.C. §103(a) as being obvious over Schmidt (U.S. Patent Application Publication 2002/0196029; hereinafter Schmidt). This rejection is respectfully traversed. Turning initially to the rejection of Claim 1, as previously discussed Claim 1 has been amended to recite:

“a transceiver formed on the wafer, wherein the transceiver is formed in one of a scribe line formed in the wafer or on an unusable portion of the wafer to permit testing of the integrated circuits during various stages of a manufacturing process and before separation of the individual integrated circuits and to avoid using any area of the wafer useable to form an integrated circuit;”

In contradistinction, Schmidt referring to Figure 4 in paragraph [0036] recites “FIG. 4 shows a block diagram of a multi-mode wireless communicator device 100 fabricated on a single silicon integrated chip. Accordingly, Schmidt clearly teaches that the transceiver is formed on integrated circuit chip and Schmidt does not teach or suggest that the transceiver is formed in one of a scribe line formed in the wafer or on a portion of the wafer unusable to form an integrated circuit as provided by the present invention as recited in Claim 1. Therefore, Applicant respectfully submits that Claim 1 is patentably distinguishable over Schmidt, and reconsideration and withdrawal of the 35 U.S.C. §102(a) rejection of Claim 1 is respectfully solicited.

Turning now to the rejection of Claim 7 and 14-20, claim 7 was included in the discussion on page 12 of the Office Action under the rejection of Claims 1, 14-20, 31, 35 and 42 under 35 U.S.C. §103(a) as being obvious over Schmidt. These Claims recite additional features which further patentably distinguish over Schmidt. For example, Schmidt does not teach or suggest that the transceivers are adapted to provide one of an amplitude shift keying (ASK) or an on-off keying (OOK) modulation scheme as provided by the present invention as recited in Claim 18, nor does Schmidt teach or suggest that the transceiver is adapted to receive and

transmit signals to perform tests under burn-in stress conditions or other environmental extremes as recited in Claim 20.

Additionally, Claims 7 and 14-20 depend either directly or indirectly from independent Claim 1. Because of this dependency, Claims 7 and 14-20 contain all of features of independent Claim 1. Accordingly, these claims are also submitted to be patentably distinguishable over Schmidt, and reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of Claims 7 and 14-20 is respectfully solicited.

Turning now to the rejection of Claims 31, 35 and 42 under 35 U.S.C. §103(a) as being obvious over Schmidt, these claims also contain additional features which further patentably distinguish over Schmidt. Claim 31 recites a multiplexing circuit to couple each transceiver selectively to one of a predetermined number of the multiplicity of integrated circuits. Claim 35 recites that each transceiver is powered via one of a probe, a radio frequency power signal, a word-line/bit-line power distribution scheme and a pad electrically connectable to the transceiver. Additionally, these claims depend either directly or indirectly from independent Claim 30 and by virtue of that dependency contain all of the features of Claim 30. Claim 30 recites features similar to independent Claim 1 and is therefore submitted to be patentably distinguishable over Schmidt. Accordingly, Claims 31 and 35 are also submitted to be patentably distinguishable over Schmidt.

With respect to the rejection of Claims 29 and 42 under 35 U.S.C. §103(a) as being obvious over Schmidt. Claim 29 depends directly from independent Claim 1 and Claim 42 depends directly from independent Claim 30. Because of these dependencies, these claims contain all of the features of the referenced claim. Therefore, applicant respectfully submits

Claims 29 and 30 are also patentably distinguishable over Schmidt, and reconsideration and withdrawal of the 35 U.S.C. §102 rejection of these claims as respectfully requested.

Claims 21, 36, 43 and 44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schmidt in view of Kirihata. This rejection is respectfully traversed. Applicant respectfully submits that this rejection under 35 U.S.C. §103 does not follow the M.P.E.P. § 706.02(j) which states:

“After indicating that the rejection is under 35 U.S.C. §103, the examiner should set forth in the Office Action:...(B) the difference or differences in the claim over the applied reference(s), (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and (D) an explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification... the teaching or suggestion to make the claimed combination and the reasonable expectation of the success must both be found in the prior art and not based on applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438(Fed. Cir. 1991).

As discussed in detail below, Applicant respectfully submits that there is no teaching or suggestion in Schmidt or Kirihata that their teachings may be combined so as to provide the present invention as recited in the claims and such motivation only comes from Applicant’s disclosure. This approach constitutes impermissible hindsight and must be avoided.

Kirihata in column 7, lines 2-5 recites:

“A comparator may be provided either in the RF Wand or on Chip (21) so that only those current test results which are different from contents of the NVRAM are displayed on the RF Wand.”

In contrast, there is no teach or suggestion in Schmidt to compare any test results that may be stored in a memory. Schmidt has no need for the comparator of Kirihata. Accordingly, a person of skill in the art would not be motivated to combine the teachings of Kirihata and Schmidt. Even if it were proper to combine the teachings of Kirihata and Schmidt, they still would not provide the present invention as recited in the claims.

Claims 21, 36, 43 and 44 recite features which patentably distinguish over Schmidt and Kirihata, whether considered individually or combined. For example, Claims 21, 36 and 43 recite an amplifier to amplify the IF signal in response to the RSSI. In contrast, Schmidt in paragraph 0042 lines 7-19 recites:

“In another embodiment of transmitter/receiver section 112, intermediate frequency (IF) stages are used. In this embodiment, during cellular reception, the transmitter/receiver section converts received signals into a first intermediate frequency (IF) by mixing the received signals with a synthesized local oscillator frequency and then translates the first IF signal to a second IF signal. The second IF signal is hard-limited and processed to extract an RSSI signal proportional to the logarithm of the amplitude of the second IF signal. The hard-limited IF signal is processed to extract numerical values related to the instantaneous signal phase, which are then combined with the RSSI signal.”

Accordingly, Schmidt teaches that a second IF signal is processed to extract an RSSI signal and later combined with the RSSI signal. Accordingly, there is no teaching or suggestion in Schmidt that an amplifier amplifies the IF signal in response to the RSSI as provided by the present invention as recited in Claims 21 and 36. Additionally, Claim 21 depends directly from independent Claim 1 and Claim 36 depends directly from independent Claim 30. Because of these dependencies, Claims 21 and 36 contain all of the features of the referenced based claim. Applicant respectfully submits that Schmidt adds nothing to the teachings of Kirihata so as to render independent Claims 1 and 30 unpatentable. Therefore, Claims 21 and 36 are also submitted to be patentably distinguishable over Schmidt and Kirihata, whether considered individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of Claims 21 and 36 is respectfully solicited.

With respect to the rejection of independent Claim 43 under 35 U.S.C. § 103(a) as being unpatentable over Schmidt in view Kirihata, Claim 43 recites features similar to those in claims 21 and 36 which are not taught or suggested by Schmidt or Kirihata as discussed above. Therefore, Applicant respectfully submits that Claim 43 is patentably distinguishable over Schmidt and Kirihata, whether considered individually or combined, and reconsideration and withdrawal of the Section 103 rejection of independent Claim 43 is respectfully solicited.

With respect to the rejection of Claim 44 under 35 U.S.C. § 103(a) as being unpatentable over Schmidt in view of Kirihata, Claim 44 recites “each of the down converter, RSSI, amplifier and comparator are formed in a scribe line formed in the wafer.” Applicant respectfully submits that there is no teaching or suggestion in Schmidt or Kirihata that these components are formed in a scribe line of the wafer. Additionally, Claim 44 depends directly from independent Claim 43 and because of that dependency contains all of the features of Claim 43. Accordingly, Claim 44 is submitted to be patentably distinguishable over Schmidt and Kirihata, whether considered

individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103 rejection of Claim 44 is respectfully requested.

Claims 22 and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt and further in view of Menich et al. (U.S. Patent 4,704,734; hereinafter Menich). This rejection is respectfully traversed. Applicant respectfully submits that this rejection under 35 U.S.C. § 103 does not follow the M.P.E.P. § 706.02(j) as recited above. Applicant further respectfully submits that there is no teaching or suggestion in Schmidt or Menich that their teachings may be combined so as to provide the present invention as recited in the claims and such motivation only comes from Applicant's disclosure which constitutes impermissible hindsight and must be avoided. Menich teaches a method and apparatus for signal strength measurement and antenna selection in cellular radio telephone systems. Menich shows no recognition for the problem solved by the present invention, namely, to test integrated circuits in wafer form and to be able to do so during manufacturing process. Menich also show no recognition for the problem solved by Schmidt which teaches systems and methods for testing wireless devices. Thus, a person of ordinary skill in the art would not be motivated to combine the teachings of Menich and Schmidt so as to provide the present invention as recited in the claims. Even if it were proper to combine the teachings of Schmidt and Menich they still would not provide the present invention as recited in Claims 22 and 37. Claim 22 recites:

“a filter to filter selected frequency band signals from a charge pump signal;
a voltage controlled oscillator to receive a filtered signal from the filter; and
a power amplifier to modulate a carrier signal from the voltage controlled oscillator by a data input signal.”

In contrast, the Office Action cited paragraph [0040], lines 1-12 of Schmidt for teaching a filter to filter selected frequency band signals from a charge pump. Applicant respectfully submits that there is no teaching or suggestion in paragraph [0040] or anywhere else in Schmidt of a filter to filter selected frequency band signals from a charge pump. Additionally, while Schmidt in paragraph [0042] does recite a power amplifier and voltage-controlled oscillators, Schmidt merely provides a catalogue of parts. These parts are not shown in any Figure of Schmidt and Schmidt does not teach or suggest how these components are interconnected. It is a well established axiom of patent law that known components combined in a novel and unobvious way constitute a patent invention. Applicant respectfully submits such is the situation here since

Schmidt does not teach how these components are interconnected. Accordingly, Applicant respectfully submits that there is no teaching or suggestion in Schmidt that a voltage controlled oscillator receives filter signals from the filter and that a power amplifier modulates the carrier signal from the voltage controlled oscillator by a data input signal as provided by the present invention as recited in Claim 22.

Furthermore, Claim 22 depends directly from independent Claim 1. Because of this dependency, Claim 22 contains all of the features of Claim 1. Menich adds nothing to the teachings of Schmidt so as to render Claim 1 unpatentable. For all of these reasons, Claim 22 is submitted to be patentably distinguishable over Schmidt and Menich, whether considered individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of Claim 22 is respectfully solicited.

With respect to the rejection of Claim 37 under 35 U.S.C. § 103(a) as being unpatentable over Schmidt in view of Menich, Claim 37 recites similar features to Claim 22. Additionally, Claim 37 depends directly from independent Claim 30, and by virtue of that dependency contains all of the features of Claim 30. Menich adds nothing to the teachings of Schmidt so as to render independent Claim 30 unpatentable. Accordingly, for all of the reasons discussed above, Claim 37 is submitted to be patentably distinguishable over Schmidt and Menich, whether considered individually or combined, and reconsideration and withdrawal of the Section 103 rejection of Claim 37 is respectfully requested.

Claims 45 and 46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt in view of Kirihata and further in view of Menich. This rejection is respectfully traversed. As previously discussed, the combination of Schmidt, Kirihata, and Menich is improper under M.P.E.P. § 706.02(j). Even if it were proper to combine Schmidt, Kirihata, and Menich, they still would not provide the present invention as recited in Claims 45 and 46. Claim 45 recites similar features to Claims 22 and 37. As discussed with respect to Claims 22 and 37, Schmidt, Kirihata, and Menich do not teach or suggest the features of a filter to filter signals in a selected frequency band from a charge pump; a voltage controlled oscillator to receive a filtered signal from the filter; and a power amplifier to modulate a carrier signal from the voltage controlled oscillator as recited in Claim 45. Additionally, Claim 45 depends directly from independent Claim 43. Menich adds nothing to the teachings of Schmidt and Kirihata so as to

render independent Claim 43 unpatentable. Therefore, Applicant respectfully submits that Claim 45 is patentably distinguishable over Schmidt, Kirihata, and Menich, whether considered individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103 rejection of Claim 45 is respectfully solicited.

With respect to the rejection of Claim 46 under 35 U.S.C. § 103 as being unpatentable over Schmidt in view Kirihata and further in view of Menich, as discussed above the combination of these references is improper under the M.P.E.P. Even if it were proper to combine these documents, they still would not provide the present invention as recited in Claim 46. Claim 46 recites "each of the phase/frequency detector, charge pump, filter, voltage controlled oscillator and power amplifier are formed in a scribed line formed in the wafer." Applicant respectfully submits that there is no teaching or suggestion in Schmidt, Kirihata or Menich that these components are formed in a scribe line in a wafer. Additionally, Claim 46 depends directly from Claim 45 which depends directly from independent Claim 43. As a result of these dependencies, Claim 46 contains all of the features of Claims 43 and 45. As previously discussed Menich adds nothing to the teachings of Schmidt and Kirihata so as to render Claim 43 and 45 unpatentable. Therefore, Claim 46 is also submitted to be patentably distinguishable over these documents and reconsideration and withdrawal of the Section 103 rejection of Claim 46 is solicited.

Claims 23, 24 and 39 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tuttle. This rejection is respectfully traversed. Claim 23 has been canceled. With respect to the rejection of Claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle, Claim 24 contains similar features to Claim 23, namely, that the antenna system comprises an antenna system formed in a scribe line which is clearly distinguishable from the cavity in the fixture of Tuttle as previously described. Additionally, Claim 24 depends directly from independent Claim 1, and by virtue of that dependency contains all of the features of Claim 1. Claim 24 is, therefore, submitted to be patentably distinguishable over Tuttle, and reconsideration and withdrawal of the Section 103 rejection of Claim 24 is respectfully requested.

Regarding the rejection of Claim 39 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle, Claim 39 recites similar features to Claims 23 and 24. Additionally, Claim 39 depends directly from Claim 30 and by virtue of that dependency contains all of the features of Claim 30.

Accordingly, Claim 39 is submitted to be patentably distinguishable over Tuttle, and reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of Claim 39 is respectfully solicited.

Claims 25, 40, 41, 47 and 48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tuttle in view of Schmidt and further in view of Kirihata. This rejection is respectfully traversed. As previously discussed, the combination of Tuttle, Schmidt and Kirihata is improper under M.P.E.P. § 706.02(j). However, even if it were proper to combine the teachings of these documents they still would not provide the present invention as recited in the claims. Claim 25 recites:

“a plurality of differential amplifier circuits, each differential amplifier circuit being associated with one of the plurality of transceivers, were in only one of the plurality of differential amplifier circuits is active at any given time to permit the associated transceiver to receive or transmit signals.”

Paragraph [0042] of Schmidt was cited in the Office Action for teaching the features recited above. Applicant respectfully submits that while paragraph [0042] of Schmidt mentions a multi-band power amplifier, there is no teaching or suggestion in Schmidt of a plurality of differential amplifier circuits wherein each differential amplifier circuit is associated with one of a plurality of transceivers and wherein only one of the plurality of differential circuits is active at any given time to permit the associated transceiver to receive or transmit signals as provided by the present invention as recited in Claim 25. Applicant respectfully submits that differential amplifier circuits are patentably distinguishable from power amplifiers. Additionally, Claim 25 depends directly from Claim 24 which depends directly from independent Claim 1. As previously discussed, Claim 1 is patentably distinguishable over Tuttle, Schmidt and Kirihata, whether considered individually or combined. Therefore, Claim 25 is submitted to be patentably distinguishable over these documents, and reconsideration and withdrawal of the 35 U.S.C. § 103 rejection of Claim 25 is respectfully requested.

Regarding the rejection of Claims 40 and 41 under 35 U.S.C. § 103 as being unpatentable over Tuttle, Schmidt and Kirihata, Claim 41 contains similar features to Claim 25. Additionally, Claims 40 and 41 depend either directly or indirectly from independent Claim 30. As previously discussed, Claim 30 is patentably distinguishable over Tuttle, Schmidt, and Kirihata, whether considered individually or combined. Therefore, Claims 40 and 41 are also submitted to be

patentably distinguishable over these documents and reconsideration and withdrawal of the Section 103 rejection of Claims 40 and 41 is respectfully solicited.

Turning now to the rejection of independent Claim 47 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle in view of Schmidt and further in view of Kirihata, Claim 47 recites similar features to Claim 25. Therefore, Claim 47 is also submitted to be patentably distinguishable over Tuttle, Schmidt and Kirihata, and reconsideration and withdrawal of the Section 103 rejection of Claim 47 is respectfully requested.

Regarding the rejection of Claim 48 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle in view of Schmidt in further in view of Kirihata, Claim 48 recites “where in each of the loop antenna and plurality of differential amplifier circuits are formed in at least one scribe line formed in the wafer.” As previously discussed, the scribe lines of a wafer are distinguishable from the cavities in the fixture 15 of Tuttle. Additionally, Claim 48 depends directly from independent Claim 47, and by virtue of that dependency contains all of the features of Claim 47. Claim 48 is therefore submitted to be patentably distinguishable over Tuttle, Schmidt and Kirihata, whether considered individually or combined, and reconsideration and withdrawal of the Section 103 rejection of Claim 48 is respectfully requested.

Claims 26, 27, 49, 50 and 51 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tuttle and further in view of Terranova et al. (U.S. Patent Application Publication 2002/0160722; hereinafter Terranova). This rejection is respectfully traversed. Applicant respectfully submits that there is no teaching or suggestion in Tuttle or Terranova that their teachings may be combined so as to provide the present invention as recited in Claims 26, 27, 49, 50, and 51 and such combination is improper under M.P.E.P. § 706.02(j). Tuttle teaches in-sheet transceiver testing where transponders 12 formed on a sheet are passed through a fixture 15 for testing as illustrated in Figure 1 of Tuttle. In contrast, Terranova teaches wireless communication over a transducer device wherein a first transceiver 114 is coupled via an inductive or magnetic field to a second transceiver 165 using a transducer 163 (Figure 1 of Terranova). Applicant respectfully submits that a person of skill in the art would not be motivated to combine the teachings of Tuttle and Terranova so as to provide the present invention as recited in the claims. Even if it were proper to combine Tuttle and Terranova they still would not provide the present invention as recited in the claims. Claim 26 recites:

“wherein the antenna system further comprises an inductor connected in parallel with each differential amplifier circuit, wherein the inductor completes the loop antenna when an associated differential amplifier circuit is disabled.”

In contrast, Terranova in paragraph [0097], lines 6-9 recites:

“For example, inductor L115 can be impedance matched to capacitor C111 so that capacitors C116, C114, C106, and serial combination of R112 and transducer 113 form a parallel LC tank circuit. A substantial reactance of C111 and L115 can cancel each other while switched to a receive mode.”

Accordingly, Terranova does not teach or suggest an antenna system including an inductor connected in parallel with each differential amplifier circuit, wherein the inductor completes the loop antenna when an associated differential amplifier circuit is disabled as provided by the present invention as recited in Claim 26.

Additionally, Claim 26 depends indirectly from Claim 1. As previously discussed Claim 1 has been amended to patentably distinguish over Tuttle. Terranova adds nothing to the teachings of Tuttle so as to render independent Claim 1 unpatentable. For all of these reasons, Claim 26 is submitted to be patentably distinguishable over Tuttle and Terranova, whether considered individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103 rejection of Claim 26 is respectfully requested.

With respect to the rejection of Claim 27 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle in view of Terranova, as previously discussed, the combination of Tuttle and Terranova is improper under M.P.E.P. § 706.02(j). Even if it were proper to combine Tuttle and Terranova they still would not provide the present invention as recited in Claim 27. Claim 27 recites:

“a pair of inductors connected in parallel with each differential amplifier circuit, wherein the pair of inductors complete the loop antenna when an associated differential amplifier circuit is disabled; and

a field effect transistor (FET) to couple a voltage source to a node between each pair of inductors, wherein the voltage source is connected to the node in response to an RF carrier signal from an associated one of the plurality of transceivers being applied to a gate of the FET.”

Applicant respectfully submits that there is no teaching or suggestion of these features in Terranova. As discussed above the inductor L115 in Figure 2 of Tuttle merely forms a tank

circuit and does not complete a loop antenna as provided by the present invention as recited in the claims. Additionally, Terranova does not teach or suggest a FET to couple a voltage source to a node between each pair of inductors that complete the antenna loop as further provided by the present invention as recited in Claim 27.

Furthermore, Claim 27 depends indirectly from Claim 1. As previously discussed Terranova adds nothing to the teachings of Tuttle so as to render Claim 1 unpatentable. Accordingly, for all of the reasons discussed, Claim 27 is also submitted to be patentably distinguishable over Tuttle and Terranova, whether considered individually or combined, and reconsideration and withdrawal of the Section 103 rejection of Claim 27 is respectfully solicited.

Regarding the rejection of Claims 49, 50, and 51 under 35 U.S.C. § 103(a) as being unpatentable over Tuttle in view of Terranova, Claims 49 and 50 recite features similar to those of Claims 26 and 27. Additionally, Claims 49, 50 and 51 depend directly from independent Claim 47. Because of this dependency, Claims 49, 50 and 51 contain all of the features of Claim 47. As previously discussed, Claim 47 is patentably distinguishable over Tuttle. Applicant respectfully submits that Terranova adds nothing to the teachings of Tuttle so as to render independent Claim 47 unpatentable. For all of these reasons, Claims 49, 50, and 51 are submitted to be patentably distinct over Tuttle and Terranova, whether considered individually or combined, and reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of these claims is respectfully solicited.

The Office Action indicated that Claims 52-70 were directed to a method of the system of Claims 1-51; however no formal rejection under either 35 U.S.C. § 102 or 35 U.S.C. § 103 was stated in the Office Action. Applicant respectfully requests that a formal rejection of these claims be provided along with an explanation of how the cited documents are applicable to these claims, so that Applicant can appropriately respond.

Even though claims 52-70 have not been properly rejected in a manner that Applicant can effectively respond, Applicant respectfully submits that these claims recite features that are patentably distinguishable over the documents of record and are therefore patentable over the cited documents for similar reasons to those previously discussed with respect to Claims 1-51. Accordingly, these claims are submitted to be patentably distinguishable over the documents of record and allowance and passage to issuance of these claims is respectfully requested.

Conclusion

For the foregoing reasons, the Applicant respectfully submits that all of the claims in the present application are in condition for allowance. Reconsideration and withdrawal of the rejections and allowance of the claims at the earliest possible date are respectfully requested.

If the Examiner has any questions about the present Amendment or anticipates finally rejecting any claim of the present application, a telephone interview is requested.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 13-4365.

Respectfully submitted,

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